ABSTRACT OF THE DISCLOSURE

A hybrid film, comprising a first polymer film having a plasma-treated surface and a second polymer film having first and second surfaces, with the first surface of the second polymer film being disposed along the first plasma-treated surface of the first polymer film, has superior thermal and mechanical properties that improve performance in a number of applications, including food packaging, thin film metallized and foil capacitors, metal evaporated magnetic tapes, flexible electrical cables, and decorative and optically variable films. One or more metal layers may be deposited on either the plasma-treated surface of the substrate and/or the radiation-cured acrylate polymer. A ceramic layer may be deposited on the radiation-cured acrylate polymer to provide an oxygen and moisture barrier film. The hybrid film is produced using a high speed, vacuum polymer deposition process that is capable of forming thin, uniform, high temperature, cross-linked acrylate polymers on specific thermoplastic or thermoset films. Radiation curing is employed to cross-link the acrylate monomer. The hybrid film can be produced in-line with the metallization or ceramic coating process, in the same vacuum chamber and with minimal additional cost.

BEST AVAILABLE COPY